SUPPORT FOR THE AMENDMENT

Support for the amendment to claim 3 is found in claim 1 as originally presented. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, claims 1-7 will remain active in this application.

REQUEST FOR RECONSIDERATION

The claimed invention is directed to a process for producing 2-(1-hydroxy substituted) cycloalkanones as well as processes which use 2-(1-hydroxy substituted) cycloalkanones.

Applicants wish to thank Examiner Solola for the helpful and courteous discussion held with their U.S. representative on July 26, 2005. At that time, applicants' U.S. representative argued that there is no suggestion to conduct the reaction in which the difference between the amount of basic catalyst and the amount of carboxylic acid is 0.06 mol or less. The examiner also indicated that claims limited to include a recycling step would be allowable. As such, applicants have rewritten claim 3, which recites a recycling step, in independent form. The examiner is invited to pass claims 3 and 4 to issue. The following is intended to expand upon the discussion with the examiner.

2-(1-hydroxy substituted) cycloalkanones are useful in the preparation of physiologically active substances as well as perfumes. Such materials may be paired by aldol condensation of a cycloalkanone, an aldehyde and a basic catalyst (page 1, paragraph 2 of applicants' specification). Improvements in reaction yields and efficiencies are sought.

The claimed invention addresses this problem by providing a method for preparing 2-(1-hydroxy substituted) cycloalkanones by aldol condensation of a cycloalkanone and aldehyde in the presence of a basic catalyst wherein 1) the amount of basic catalyst is not less than the amount of carboxylic acid present in the aldehyde; and 2) the difference between the amount of basic catalysts and the amount of carboxylic acid is $\leq$0.06 mols per mol of

aldehyde. Applicants have discovered that by using an amount of basic catalysts in excess of the amount of carboxylic acid and in a molar amount which does not exceed 0.06 mols relative to the amount of carboxylic acid, that high yields of desired product may be obtained. In addition, applicants have discovered that by recycling the aqueous layer obtained after the aldol condensation, that improved deficiencies may be observed. Such a process is no where disclosed or suggested in the cited prior art of record.

The rejection of claims 1-5 under 35 U.S.C. § 103(a) over Tamura et al. GB 2,146,995 is respectfully traversed.

A process in which the difference between the amount of basic catalyst and the amount of carboxylic acid is 0.06 mols or less per mol of aldehyde is no where disclosed or suggested in the cited reference.

Tamura et al. merely describes a method for producing 2-(1-hydroxyalkyl)cyclohexanone by reacting a cyclohexanone with an aliphatic aldehyde in a heterogeneous system of an oil-in-water emulsion (see Abstract). An alkali is present in the reaction system serving as a catalyst (page 2, lines 28-32). The amount of alkali is described in an amount of 0.1-10 mols relative to one mol of aliphatic **aldehyde** (page 2, lines 33-35). Thus, the reference fails to suggest using an amount of basic catalyst relative to the amount of **carboxylic acid** nor that the difference between the amount of basic catalyst and the amount of carboxylic acid is 0.06 mols or less per mol of aldehyde.

In contrast, the claimed invention is directed to a process for preparing 2-(1-hyroxy substituted) cycloalkanones by aldol condensation of a cycloalkanone and aldehyde comprising a carboxylic acid in which the amount of basic catalyst is not less than the molar amount of carboxylic acid and the difference between the amount of basic catalyst and the amount of carboxylic acid is 0.06 mols or less per mol of aldehyde. As there is no teaching of either of the claim limitations of the amount of basic catalysts exceeding the amount of

carboxylic acid nor the difference between the amount of basic catalysts and the amount of carboxylic acid being 0.06 mols or less per mol of aldehyde, the claimed invention is clearly not rendered obvious by the reference.

It is asserted in the Official Action that it is well-known in the art that the aldehyde is easily oxidized to carboxylic acid citing page 1, paragraph 3, lines 1 and 2 of applicants' specification. Applicants note, that the passage of applicants' specification relied upon by the examiner makes no admission that it was known that the aldehyde is easily oxidized to carboxylic acid. Nonetheless, even if it were known that there would be carboxylic acid present in the aldehyde, there is no suggestion in the cited reference of the amount of basic catalyst to not be less than the amount of carboxylic acid nor that the difference between the amount of basic catalysts and the amount of carboxylic acid to be 0.06 mol or less per mol of aldehyde.

As noted previously, the reference merely describes an amount of basic catalysts of 0.1-10 mols relative to 1 mol of aliphatic **aldehyde**. There is no disclosure in the reference to base the amount of basic catalyst relative to the amount of **carboxylic acid** present in the aldehyde.

Moreover, as there is no teaching of the amount of carboxylic acid present in the aliphatic aldehyde of the reference, there is no suggestion to have **the difference between the amount of basic catalyst and the amount of carboxylic acid to be 0.06 mols or less** per mol of aldehyde. Thus, while the examiner may speculate that the amount of basic catalyst used in the reference could exceed the amount of carboxylic acid present in the aldehyde, there is most certainly no suggestion that the amount of basic catalyst exceed the amount of carboxylic acid **by 0.06 mols or less per mol of aldehyde**. How can it be obvious to restrict the amount of basic catalyst to be 0.06 mols or less per mol of aldehyde relative to the amount of carboxylic acid, when there is no suggestion in the reference to use the amount

of basic catalysts relative to the amount of carboxylic acid? There simply is no motivation in the absence of a description of using the amount of basic catalysts relative to the amount of carboxylic acid. The claimed invention is simply not obvious as there is no disclosure, either explicitly or implicitly of the claim limitation of the amount of basic catalyst not exceeding the amount of carboxylic acid by more than 0.06 mols.

Moreover, while the examiner asserts that applicants are merely optimizing a variable, asserting the claimed invention to be obvious citing *In re Aller*, only **result-effective variables** can be optimized *In re Antonie*, 195 USPQ6 (CCPA 1977). Thus as there is no suggestion of a relationship between the amount of basic catalyst relative to the amount of carboxylic acid nor any suggestion of any particular result obtained by adjusting such a ratio, there is no suggestion to optimize the amount of catalyst to be greater than the amount of carboxylic acid by no more than 0.06 moles.

Furthermore, applicants observe an unexpected improvement in the yield of desired product when the amount of basic catalysts exceeds the amount of carboxylic acid and the difference between the amount of basic catalyst and carboxylic acid is no more than 0.06 mols per mol of aldehyde. The examiner's attention is directed to the data on Table 1 in which example 5 illustrates the results when the difference between the amount of basic catalysts from that of carboxylic acid exceeds 0.06 mols (e.g., 0.187 mols). In example 5, the yield of desired product was only 83.8%. In contrast, examples 1-4 in which the amount of basic catalyst **does not exceed** the amount of carboxylic acid by **more than 0.06 mols**, the yield was higher, ranging from 85-90.5%. Thus, applicants clearly have demonstrated an unexpected improvement in the yield of desired product by adjusting the difference between the amount of catalyst and carboxylic acid to be within the claimed range of no more than 0.06 mols or less. As applicants observe an unexpected improvement in yield of products when this claimed limitation is met, the claimed invention is clearly not obvious from the

reference and accordingly withdrawal of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

The rejection of claim 5 under 35 U.S.C. 112 second paragraph is respectfully traversed.

Applicants respectfully submit that the language of claim 5 is sufficiently clear to those of ordinary skill in the art such that those of skill in the art would understand the metes and bounds of the claimed invention. In particular, claim 5, claims dependency on claim 1 and accordingly carries all of the limitations of claim 1 in which the amount of basic catalyst exceeds the amount of carboxylic acid and the amount of basic catalyst does not exceed the amount of carboxylic acid by more than 0.06 mols. Accordingly, the metes and bounds of the claim which further recites that the amount of basic catalyst being added is in such an amount as to neutralize or alkalize the aqueous layer is clear. However, in order to advance prosecution, claim 5 has been amended to delete the explicit recitation of inclusion of the limitation of claim 1. Withdrawal of this ground of rejection is respectfully requested.

Applicants note, that the official action indicates that applicants' claimed foreign priority is not granted because applicants have not filed a certified English translation of the priority document. However, applicants note that the only time during *Ex parte* prosecution that the examiner is to consider the merits of applicants' claim of priority is one of references found with an effective date between the date of the file foreign filing and the date of the filing in the United States and when an interference situation is under consideration (M.P.E.P. §201.15). As no reference meeting these conditions nor an interference are met, there is no basis for the examiner to reject applicants' claimed foreign priority. Applicants respectfully request the full benefit of applicants' Japanese filing date of December 26, 2002.

Applicants submit this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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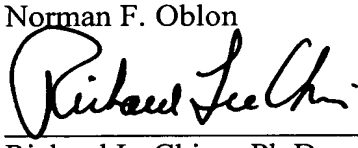

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